

What is claimed is:

1. A projector comprising:

an image display device which displays an image;

a projection section which illuminates the image display  
5 device with a light source lamp to project reflected light or  
transmitted light from the image display device onto a screen,  
thereby projecting the image displayed on the image display  
device onto the screen;

a rectifying circuit which full-wave rectifies an AC power  
10 supply input to a main unit;

a power-factor improving circuit which improves a power  
factor of an output of the rectifying circuit;

a lamp power supplying circuit to which a DC output of  
the power-factor improving circuit is supplied as an input power  
15 supply, and which supplies a power to the light source lamp;

a driver circuit which operates the lamp power supplying  
circuit; and

a DC-DC converting circuit which uses a transformer to  
covert the DC output of the power-factor improving circuit to  
20 a DC current of a predetermined voltage, and which supplies  
the DC current to a secondary side;

wherein an auxiliary winding is disposed in a primary side  
of the transformer of the DC-DC converting circuit;

the power-factor improving circuit is a circuit which has  
25 a switching transistor and a control IC for controlling the

switching transistor, and in which a voltage appearing in the auxiliary winding is used as a power supply for operating the control IC; and

when the voltage appearing in the auxiliary winding is  
5 lower than a preset voltage, the driver circuit sets the lamp power supplying circuit to a stop a state.

2. A power supply device comprising:

a rectifying circuit which full-wave rectifies an input  
10 AC power supply;

a power-factor improving circuit which improves a power factor of an output of the rectifying circuit;

a lamp power supplying circuit to which a DC output of the power-factor improving circuit is supplied as an input power  
15 supply, and which supplies a power to a light source lamp;

a driver circuit which operates the lamp power supplying circuit; and

a DC-DC converting circuit which uses a transformer to convert the DC output of the power-factor improving circuit to  
20 a DC current of a predetermined voltage, and which supplies the DC current to a secondary side;

wherein an auxiliary winding is disposed in a primary side of the transformer of the DC-DC converting circuit;

the power-factor improving circuit is a circuit which has  
25 a switching transistor and a control IC for controlling the

switching transistor, and in which a voltage appearing in the auxiliary winding is used as a power supply for operating the control IC; and

when the voltage appearing in the auxiliary winding is  
5 lower than a preset voltage, the driver circuit sets the lamp power supplying circuit to a stop state.

3. A power supply device comprising:

a rectifying circuit which full-wave rectifies an input  
10 AC power supply;

a power-factor improving circuit which improves a power factor of an output of the rectifying circuit;

a lamp power supplying circuit to which a DC output of the power-factor improving circuit is supplied as an input power  
15 supply, and which supplies a power to a light source lamp;

a driver circuit which operates the lamp power supplying circuit; and

a DC-DC converting circuit which uses a transformer to convert the DC output of the power-factor improving circuit to  
20 a DC current of a predetermined voltage, and which supplies the DC current to a secondary side;

wherein an auxiliary winding is disposed in a primary side of the transformer of the DC-DC converting circuit; and

in accordance with a voltage appearing in the auxiliary  
25 winding, the driver circuit switches between a stop state and

an operation state of the lamp power supplying circuit.

4. The power supply device according to claim 3, wherein,  
when the voltage appearing in the auxiliary winding is lower  
5 than a preset voltage, the driver circuit sets the lamp power  
supplying circuit to the stop state.

5. The power supply device according to claim 3, wherein the  
power-factor improving circuit is a circuit which has a switching  
10 transistor and a control IC for controlling the switching  
transistor, and in which the voltage appearing in the auxiliary  
winding is used as a power supply for operating the control  
IC.

15 6. The power supply device according to claim 4, wherein the  
power-factor improving circuit is a circuit which has a switching  
transistor and a control IC for controlling the switching  
transistor, and in which the voltage appearing in the auxiliary  
winding is used as a power supply for operating the control  
20 IC.